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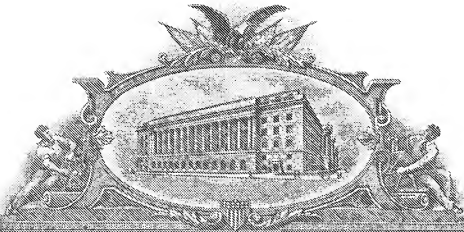Document type: Certified copy of priority document

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APPLICATION NUMBER: *60/551,636*
FILING DATE: *March 10, 2004*
RELATED PCT APPLICATION NUMBER: *PCT/US05/07366*

Certified by

[signature] Jon W. Dudas

Under Secretary of Commerce
for Intellectual Property
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Patent and Trademark Office

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a **PROVISIONAL APPLICATION FOR PATENT** under 37 CFR 1.53 (c).

Express Mail Label No.

INVENTOR(S)

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☒ *Additional inventors are being named on the 1 separately numbered sheets attached hereto*

TITLE OF THE INVENTION (500 characters max)

WIRELESSS DATA ACCESS ARCHITECTURE

CORRESPONDENCE ADDRESS

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ENCLOSED APPLICATION PARTS (check all that apply)

☒ Specification *Number of Pages*   3400   ☐ CD(s), Number

☒ Drawing(s) *Number of Sheets*   10   ☐ Other (specify)

☒ Application Data Sheet. See 37 CFR 1.76

METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT

☒ Applicant claims small entity status. See 37 CFR 1.27.

☒ A check or money order is enclosed to cover the filing fees   FILING FEE AMOUNT ($)

☐ The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 08-1641   80

☐ Payment by credit card. Form PTO-2038 is attached.

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.

☐ Yes, the name of the U.S. Government agency and the Government contract number are: _____.

Respectfully submitted,

SIGNATURE   Johnny A. Kumar   Date   3/10/04

TYPED or PRINTED NAME   Johnny A. Kumar

REGISTRATION NO. *(if appropriate)*   34,649

Docket Number: 40628-0005

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PROVISIONAL APPLICATION COVER SHEET
Additional Page

	Docket Number	40628-0005

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Number 1 of 1

PTO/SB/17 (01-03)
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FEE TRANSMITTAL
for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($) 80

Complete if Known	
Application Number	Unassigned
Filing Date	March 10, 2004
First Named Inventor	James Douglas Edwards
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Art Unit	Unassigned
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METHOD OF PAYMENT (check one)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit Account Number	08-1641 (Docket No. 08-1641)
Deposit Account Name	Heller Ehrman White & McAuliffe LLP

The Commissioner is authorized to: *(check all that apply)*

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Entity Fee ($)	Small Entity Fee Code	Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	80
				SUBTOTAL (1) ($)	80

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims		Fee from below		Fee Paid
Total Claims	-20** =		x	=	
Independent Claims	-3** =		x	=	
Multiple Dependent					

Large Fee Code	Entity Fee ($)	Small Fee Code	Entity Fee ($)	Fee Description	
1202	18	2202	9	Claims in excess of 20	
1201	86	2201	43	Independent claims in excess of 3	
1203	290	2203	145	Multiple dependent claim, if not paid	
1204	86	2204	43	**Reissue independent claims over original patent	
1205	18	2205	9	**Reissue claims in excess of 20 and over original patent	
				SUBTOTAL (2) ($)	

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Entity Fee ($)	Small Entity Fee Code	Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for ex parte reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

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SUBMITTED BY

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Signature		Date	3/10/04	Customer No. 26633	

Complete (if applicable)

PROVISIONAL U.S. PATENT APPLICATION

for

WIRELESS DATA ACCESS ARCHITECTURE

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WIRELESS DATA ACCESS ARCHITECTURE

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

[0001] The present invention relates generally to remotely accessing data by a wireless device.

DESCRIPTION OF THE RELATED ART

[0002] Internet browsers for accessing data via the Internet are known. Existing Internet browsers download all of the icons, formatting information, text, etc. used for displaying Internet content each time a WebPage is accessed by a user. Such information may be transferred from the data service provider to the accessing device in differing data formats. Transmitting large files is cumbersome for wireless devices, however, due to the limited bandwidth wireless devices commonly use for accessing service providers. Further, even where broadband wireless access is available, a reduction or elimination of large file transfers is desirable to hasten the speed at which the wireless device accesses information from the data service provider. Thus, a need exists for an improved remote data access architecture for wireless devices.

[0003] Other problems with the prior art not described above can also be overcome using the teachings of the present invention, as would be readily apparent to one of ordinary skill in the art after reading this disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS AND ATTACHMENTS

[0004] Attachment A includes exemplary client side source code for performing one or more of the embodiments of the present invention.

[0005] Attachment B includes exemplary server side source code for performing one or more of the embodiments of the present invention.

[0006] Attachment C describes exemplary product highlights according to various embodiments of the present invention.

[0007] Attachment D describes an Express launcher / Channel linking according to various embodiments of the present invention.

[0008] Attachment E includes a manual for an exemplary software suite according to various embodiments of the present invention.

[0009] Figure 1 depicts a wireless data access architecture according to an embodiment of the present invention.

[0010] Figure 2 includes an exemplary screen shot from a weather plugin/channel according to an embodiment of the present invention.

[0011] Figure 3 includes exemplary screen shots from a flight plugin/channel according to an embodiment of the present invention.

[0012] Figure 4 includes exemplary screen shots from an entertainment showtime plugin/channel according to an embodiment of the present invention.

[0013] Figure 5 includes exemplary screen shots from a mapping/directions plugin/channel according to an embodiment of the present invention.

[0014] Figure 6 includes exemplary screen shots from a storyboard/news plugin/channel according to an embodiment of the present invention.

[0015] Figure 7 includes exemplary screen shots from a telephone directory plugin/channel according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

[0016] Reference will now be made in detail to exemplary embodiments of the present invention. Wherever possible, the same reference numbers will be used throughout the drawings to refer to the same or like parts.

[0017] A wireless data access architecture according to a first embodiment of the present invention is shown in the block diagram of Figure 1. The depicted architecture includes a data service provider (Handmark.com) in

communication with a wireless device (e.g., Palm PDA and/or SmartPhone, Pocket PC PDA and/or Pocket PC Phone Edition SmartPhone, Windows Mobile SmartPhone, Symbian PDA and/or SmartPhone, J2ME Phone, and BREW Phone) via a wireless communication medium (e.g., wireless Internet). Additionally, the data service provider may be in communication with one or more content providers via a hardwired or wireless communication media (e.g., native Internet). This wireless data access architecture may be used with one or more of various embodiments of the present invention described in greater detail below.

[0018] A second embodiment of the present invention is directed at reducing an amount of data transmitted between a wireless device and a data service provider, such as the exemplary wireless devices and data service providers depicted in Figure 1. More specifically, a reduction in transmitted data is achieved by (i) maximizing the amount of data stored on the wireless device itself; and/or (ii) reducing the data provided from suppliers to the least possible amount necessary to deliver information to the wireless device. By way of example, application files may be stored on the wireless device rather than being transmitted each time an Internet content data source is accessed. In this regard, an application file may comprise data and technology elements such as:

- Data stored on a device through a client
  - Icons
  - User interface elements including:
    - Buttons
    - Forms
    - Navigational elements (example, "North", "South", "East", "West" scrolling of maps)
  - Locations for easy input (US States, Canadian Provinces, etc)
  - User Preferences
  - Cached Results

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□   Technology
　　　□   Streaming tickers

[0019] In this manner, only the status/update information that may be required to update the presentation on the wireless device is transmitted from the data service provider to the wireless device via the wireless communication medium.　According to one embodiment of the present invention, full presentation information is presented to the data service provider (e.g., in 25 Mb+ files), which distills down only the status/update information (e.g., in less than 15 kb files) for the wireless device.

[0020] To more fully illustrate this concept, an exemplary weather report plugin/channel is shown in Figure 2. The icons for various weather conditions (e.g., rain, snow, cloudy, sunny, etc.) and the page formatting information (e.g., where the icon appears in relation to the high and low temps, etc.) may be stored on the wireless device at a time prior to accessing the pages.　To display the weather report on the wireless device, the wireless device then only has to retrieve the forecast data from the data service provider.　In other words, the icons and page formatting information do not have to be transmitted to the wireless device when the page is accessed.　Thus, the present embodiment achieves a reduction in the amount of data transmitted from the data content provider to the wireless device when a page is accessed.

[0021] Additional related features may include (1) systems and processes to deliver messaging to wireless devices, (2) systems and processes to deliver application updates to the devices, (3) systems and processes to do all of this over the air (OTA), (4) techniques for data capture and preparation for delivery to the wireless device, and (5) techniques for data presentation on the wireless device.

[0022] According to another embodiment of the present invention, the wireless device may be provided with data linking capabilities for integrating one or more of various plugins/channels on the wireless device.　The phrase "data linking" refers to the wireless device's capability to link data between multiple

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plugins/channels within an application (either from the launcher to a channel or from a channel to another channel) or between the application (or any channel within the application) and other applications (e.g., 3rd party software), thereby allowing a user to seamlessly move from one plugin/channel to another where the data used overlaps (e.g. to only have to enter common data once which is forwarded between the plugins/channels). It should be appreciated that the terms "plugin" and "channel" generally refer to a particular data management sub routine of a higher level program referred to as an "application". Hence, plugins/channels can be thought of as subroutines that fit as modules within a higher level application.

[0023] To more fully illustrate this concept, a calendar/address book application is described as may be used in a data linking embodiment (typically involving data-linking of an application to third-party software). More specifically, a calendar/address book application may be available on the wireless device, such as the handheld's default personal information management (PIM) application, the address book provided in Palm operating system based devices, or the like. A user may access his calendar to see upcoming appointments, such as a business trip to Kansas City, Missouri on July 4, 2004. If the wireless device is equipped with the present embodiment, the user may use it to look up the address of the business in Kansas City, which data is then used by the other channels/plugins to provide the user with driving directions on the wireless device and/or the user may save the address data automatically in the address book in the wireless device (typically involving data-linking of a channel to another channel). The reverse may also be true where a plugin/channel can link returned Internet content into the calendar/address book (typically involving data-linking of a channel to third-party software). By way of example, the user can search for a flight and add the returned results to the calendar/address book on the wireless device.

[0024] Similarly, a "weather" plugin/channel may be provided, which provides certain weather related data. When the weather plugin/channel loads from a link (or menu item) via the calendar/address plugin/channel, the travel

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plugin/channel, or the mapping plugin/channel, the weather plugin may pull up a weather report for Kansas City, etc. This data linking concept is distinct from linked WebPages at least in that different sources of data are implicated (i.e., independent WebSites versus a single source), the method of presentation is different, accumulation of data by the handheld versus separate presentations in known Internet browsers, and retention of data by handheld versus expiring WebPages on known Internet browsers. Further, as individual plugins/channels are being linked, the data exchange format between plugins/channels differs substantially from that of providing via HTML common data for a subsequent WebPage to the same Internet browser in accessing that subsequent WebPage - by way of example plugin/channel linking typically requires both a sharing of data and a call to pull up the second plugin/channel. Other distinctions also exist.

[0025] Data linking of the type previously described is shown in Figure 5H. By way of example, when the address of the plant for the Kansas City, MO visit is displayed (including address information for Handmark - the Kansas City, MO plant), the user may be provided with a plurality of link buttons or menu selection items (MapIt [to channel data linking], AddIt [to 3rd party application data linking], DialIt [to 3rd party application data linking], DirectIt [to channel data linking], etc.). The MapIt function automatically loads a mapping plugin/channel (populating the required fields to return a map) and the DirectIt function automatically loads a driving direction plugin/channel (populating the required fields to produce directions) as will be described in regards to further embodiments below. The AddIt function automatically adds the contact information to the address book, and the DialIt function automatically dials the telephone number provided in contact information (whether or not the user stored the information in the wireless device's address book) using wireless voice capabilities in the wireless device, if available. In all four of these functions, information is linked from the appointment to the follow on applications - i.e., the plugins/channels are "data linked" to provide the user with greater functionality.

[0026] According to one embodiment of the present invention, a wireless device data access program may be provided for an operating system such as Palm OS, Windows Mobile, Pocket PC, Windows Mobile SmartPhone, Symbian, J2ME or BREW, or Windows CE. For purposes of illustration, the program may consist of 2 types of components: (i) a base application provided on the wireless device will be referred to as an application "launcher", and (ii) individual modules being referred to as "plugins" or "channels" as previously described. Preferably, each plugin has the ability to function separately, i.e. without the launcher installed. This will allow users to purchase and utilize a single plugin without using the launcher. Using the weather plugin/channel shown in Figure 3 as an example, a user may purchase this plugin and reprogram a hard button on the wireless device with the weather plugin/channel. Once reprogrammed, tapping the hard button once launches the weather plugin/channel and tapping it twice launches the weather update (similar to a snappermail application). However, if the user has the launcher installed then the launcher could be reprogrammed on the hard button and two clicks button presses will launch the wireless updates for the plugins. Other configurations are also contemplated, such as tapping on information, pushing a menu button on the wireless device, etc. In this regard, any means for activating a function may apply, such as activating a touch screen on the wireless device, using other navigation/input methods provided on the wireless device (e.g., a 5 way navigation device as present on the Treo 600), etc.

[0027] Another embodiment of the present invention is the ability to auto-populate content channels with the users default location. Once the user enters their default zip code, that zip code will automatically deliver internet content for that location. By way of example, the user enters 94022 as their default zip code and a "Current and 7 Day" weather forecast will be created for the Los Altos, CA area within the weather plugin/channel.

[0028] According to one embodiment of the present invention, the launcher serves as (i) an aggregator, or framework, to categorize and launch all

plugins; (ii) a single-point of common data entry/retrieval such as the user profile; (iii) an auto-update scheduling mechanism, and/or (iv) an update mechanism for channels/plugins, new features, and/or new plugins/channels. In this regard, the launcher may communicate with the plugins/channels through any number of application program interfaces (API). One launcher API includes "UPDATECONTENT", which, for example, launches the plugin, performs the default update and returns to the launcher. This may be used for full updates as each plugin is updated in succession. Another such API includes "LAUNCH", which launches the plugin and returns to the launcher when the user exits the plugin. This allows the user to view the content in the plugin and return to the plugin list in the launcher. In other words, the launcher presents the channels (plugins) buttons, then when clicked, the channel is launched, when the channel is closed, the user returns to a default channel or list of channels. Yet another such API includes "RETRIEVEUPDATESUMMARY", which retrieves the last content update time and a short summary of the update from the plugin. This will allow the launcher to display a summary and date/time of the last update in the list up plugins. A final such API includes "USERINFO", directed at a means of accessing/updating common user information for the account verification and other default data used in plugins across all applications. This may simply be a database that all applications will access to pull default location setting and account management information.

[0029] Preferably, the launcher will call a channel/plugin via one of at least two methods, a sub-call (SysAppLaunch) method and a switch (SysUIAppSwitch) method. The "sub-call" method expects control to be returned to the launcher when the plug-in exits. This method can be used in cases when a plug-in does not fully launch, such as notifying a plug-in to update with a proxy server or showing a dialog (if needed). In contrast, the "switch" method preferably turns over control to the plug-in itself. This method can be used when the plug-in launches fully. Under a "switch" call, control is typically passed back to the launcher only if the plug-in explicitly launches the launcher via

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SysUIAppSwitch. It should be appreciated that calling the plug-in via the "switch" method allows the plug-in to have access to global variables. Thus, during a "switch" method call, before making a SysUIAppSwitch call, the calling application should use MemPtrSetOwner to change ownership of the parameter block (if any) to the OS to insure the memory is not freed before the plug-in is called. Generally, this will only apply if the parameter block is used.

[0030] According to another embodiment of the present invention, a common database may be created for storage of data to be accessed by the launcher and plugins. Since it will be possible for a plugin to be installed in the absence of the launcher, the plugin and launcher may both be capable of creating this database if it does not exist.

[0031] The common database typically contains account information and the common preferences that will be set by the launcher, such as default city, state, zip. The common database may also contain an overview record for each plugin that the launcher will access to display a highlight of the plugin information. For weather, this might be just the high, low and current temperature for today. Each plug-in can be sub-called with a command to update its information via the proxy server to insure the overview record is up-to-date. This overview record may contain the following information: creator id of plug-in, short description of plug-in such as "Weather", overview details of plug-in such as "Currently: 85, Low: 72, High 89", timestamp of last update, etc.

[0032] According to another embodiment of the present invention, this database may contain plugin registration records. Each record may contain a creator id of a registered plugin. The plugin may be responsible for insuring that it is registered so the launcher will be able to call and manage it. If the launcher finds a registration that is no longer valid (plugin has been removed), then the launcher may remove that record from the database. Implementation of the common database can be one database with different types of records (described above) and each record having a "type" field. Alternatively, each

type of record could reside in a separate database. It should be appreciated that each plugin may (additionally or alternatively) use its own database(s) and record format to store data, such as comprehensive data that is retrieved from the proxy server.

[0033] According to yet another embodiment of the present invention, the launcher calls plug-ins (sub-call or switch) with one of the following launch codes: "sysAppLaunchCmdNormalLaunch" and "sysAppLaunchCmdUpdateInfo". The launcher calls SysUIAppSwitch with sysAppLaunchCmdNormalLaunch when a plugin is to be fully launched. Calling via this method insures the plugin has access to global variables (i.e., the method of the call results in global access). Upon launch, the plugin performs as designed. A user can return to the launcher via tapping a "Done" button or equivalent. If the user exits the plug-in via tapping on the "Done" button on the screen or any other means, the plug-in preferably displays the main screen.

[0034] The sysAppLaunchCmdUpdateInfo launch code is a custom launch code. The launcher and plugin code may contain the definition "#define sysAppLaunchCmdUpdateInfo   0x8001" for this launch code (example specific to Palm OS). The launcher calls SysAppLaunch with sysAppLaunchCmdUpdateInfo to request the plugin to update its overview record in the relevant database (given there may be a variety of data structures). The launcher may establish a network connection to the data service before calling each plugin. Then the launcher may keep the network connection open long enough for the each plugin to update during the same network connection. Each plugin should also call NetLibClose and pass "false" for the immediate parameter before returning control to the launcher. Where the present embodiment is used with a Palm OS, the plugin should return control to the launcher by returning from it's PilotMain function with a zero or error code.

[0035] The launcher preferably provides one or more of the following functions:

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1. Interface to maintain/manage data for it and/or the plugins.
2. Sub-call each plugin to request plugin to update with service provider on demand or via a scheduled update.
3. Display overview information from each plugin.
4. Ability to launch any given plugin.
5. Ability to add/remove plugins. The launcher may discover new plugins via the service provider and download them as the user wants them.
6. Authentication between wireless device and service provider.
7. Manage communications (e.g., messages, display terms of use and end user license) between service provider and user.
8. Update current launcher and plugins as needed

Other features and configurations are also contemplated.

[0036] Screen shots are shown in Figure 3 for a flight information plugin/channel usable with the aforementioned launcher. In this regard, it should be appreciated that a user is preferably able to access data for a particular channel from different approaches to reach the ultimate information the user desires. For example, in the airline channel, user can go by number, time, airport. User also has ability to search service provider for the necessary information (e.g., airline code for flight info) and upon selection the information is automatically added to the main search criteria.

[0037] Preferably, when the flight channel is launched it defaults to display the "Find a Flight by Flight Number" screen shown in Figure 3A, and the date defaults to today's date. The user selects the date and enters the airline code and flight number to search for a flight. If the user does not know the airline code the user can press the "Lookup" button which will display the airline code lookup page. The user then enters the airline name, then presses the search button to retrieve a list of airlines shown in Figure 3B. The user will select an airline and press the "OK" button which will take them back to the find a flight page with the airline code populated. The user will press the "Search" button to search for the flight information requested.

[0038] If the user chooses the Airport-Airport button the search area will change to display the date, departure time, departure airport code and arrival airport code shown in Figure 3D. The date should default to today's date. The user can choose the date and arrival or departure time with the drop down lists. The exemplary time selections are 12am–6am, 6am-12pm, 12pm-6pm, or 6pm-12am. The user can tap the "Lookup" button to search for the flights that fall within the defined search. When selected it populates the field in the previous find a flight.

[0039] If more than one flight is found from the search, a list should be displayed as shown in Figure 3F. This list functions like all other lists in the launcher (yellow selection, 5 way, etc.). The "Done" button of left 5way should return the user to the flight search page. If only one flight is found from the search (as in a flight # search) the launcher should navigate directly to the flight summary page (see Figure 3G) and skip the flight list (see Figure 3F). If multiple results are found, the user can make a selection to reach the summary information for the particular plugin, including, but not limited to, clicking on items on a touch screen, using handset buttons to highlight the desired choice, etc.. For example, the flight summary page shown in Figure 3G.

[0040] The flight summary page shown in Figure 3G displays the arrival and departure times of the information retrieved. It also allows the user to update the information from the "Update" button or pull more information such as gate, baggage claim, current flight status, etc. through the "Details" button. The flight feed returns as many as 4 times for each arrival/departure. An exemplary display format includes:

1. If an "actual time" is retrieved then the event (departure/arrival) has been completed. Therefore the text should read as "Departed ATL at 8:30 am" or "Arrived DFW at 9:43 am"

2. If there is no actual time then the event has not yet been completed. In this case, it should have a "scheduled time" and may also have an "estimated time"
   a. If there is no estimated time then say "Scheduled to depart at 9:30 pm"
   b. If there is an estimated time then say "Scheduled to depart at 9:30 am and estimated to depart at 9:45am"

[0041] According to one embodiment of the present invention, the user is provided with the ability to examine any detailed information available that is not presented in summary page by various means. Preferably, if the user taps the "Details" from the summary page (Figure 3G) then another query will pull (e.g., initiate a new connection with the service provider or just retrieve relevant data from device data bases) the full details for this flight. The details may include gate, baggage claim, meal, flight comments, cancellation notes, meal, on time performance and flight tracking information (lat long, speed, altitude, flight image, etc.). This information may all be available on this scrollable form, though it may or may not be depending on the amount of data to be depicted or based on the particular channel/plugin at hand.

[0042] Once the desired flight is retrieved, the user can use the data in different ways, including transferring it to other channels or 3rd party applications on the wireless device. For example, the user has the option to add it to their calendar. The information added to the calendar may include one or more of airline, flight number, departure time, arrival time, departure airport and gate information, and arrival airport.

[0043] Screen shots for a movie information plugin with the aforementioned launcher according to another embodiment of the present invention are shown in Figure 4. A first task is to search and display showtimes for all movies or a specific movie at the user's favorite theaters. Preferably, this is part of the base information that the user provides and is stored in the database for use by the plugin. The user may primarily be interested in the list of movies with the movie name, genre, rating, time playing, showtime and theater name.

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The user may secondarily be interested in the movie details including the cast, description, etc. Hence, the launcher may control the amount of the data downloaded based on user defined preferences and/or its ability to self detect the network speed, such that, in the present embodiment, this information may only be available if the user chooses the "Include Movie Details" in the search as low bandwidth users may not want to bring this information down for all movies. Users who do not pull the full movie details on the initial search may choose to do so from the movie details screen for a selected movie. Users may also be interested in the theater details related to a showtime. This includes the address, ticket prices, etc. The address may be linked into the mapping plugin/channel as previously described in regards to data linking. The user may also search for a movie name with the same user-defined location or theater. In the case of an update of the movie channel, the update would update all defined theaters as well as information based on other approaches to the topic. Hence, there are at least two distinct types of updates – at a launcher level update all, which updates all channels, and at a channel level, which updates just the channel (and particular type of current or default search).

[0044] A secondary task is to search and display showtimes for all movies or a specific movie name at a user-defined location or theaters. This is useful for travelers who typically do not want to search for movies outside their favorite theater list. The user may search for a location with a City/State or Zip. This will return all movies (and theaters/showtimes) in that local area, assuming they don't hit the maximum number of returned locations or showtimes. For instance, there are 185+ theaters in New York, NY so it is not feasible to return all the movies for these theaters. Hence, a warning message may be generated when such a search is entered, the warning message notifying the user to enter more specific search criteria. This may be true for other channels as well. E.g. on the 411 plugin/channel, the user may get a similar warning message if it returns too much information as defined by the application (either server side or device side) and/or other means (e.g., user,

bandwidth, device available memory etc). The user may also search for a movie name with the same user-defined location or theater.

[0045] Figure 4A shows a primary screen on the movie listing application. The "Update" button updates the showtimes for all movies showing at their "My Theaters" list. The "New Search" button will allow users to create a showtime search at a user-defined location. This screen should include all the information necessary for a user to decide on a movie but no more. By way of example, this may include the name, genre, rating, length showtimes and theater.

[0046] Selecting a movie from the showtime list (Figure 4A) will display the movie details shown in Figure 4B. In other words, once the initial results have been returned, the user will have the ability to expand the information obtained the navigating through the particular details, such as the cast, director, time, release date, running time and review. The user can choose the "Theaters" button to view the detailed information on the theaters (Figure 4C) returned in the showtimes search.

[0047] If the user chooses not to return all the movie details (in the showtime search) then only the name, genre, rating and length are displayed. A button for "Movie Details" will query (e.g., initiating a new connection to the service provider or looking to the local database(s)) for the full details on that movie and display it. Selecting "Theaters" from the movie details list (Figure 4B) displays all details on the theaters (Figure 4C) displaying showing movie (that were returned in the results). From here a user should be able to select a theater to add it to their favorites list (if it is not already there) or map it.

[0048] From the "New Search" button on the main showtimes listing (Figure 4A) users will have the ability to search either by a specific movie name or all movies at a specific location (or theater) or using their 'My Theaters' list (Figure 4D). Since this may be a dynamic form, the fields are displayed or removed based on the drop down selections (see Figure 4E). This will drastically simplify the user interface (UI) from the users perspective. This exemplifies another way that the volume of data may be managed - i.e., by

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having dynamic forms / search queries, data presentations based on a variety of factors – available bandwidth, user preferences, subject matter and search approach to subject matter, etc. The Theater name, city, state and zip are only displayed if the user chooses to search by location. The user may choose to search for a specific theater or just a City/state or zip location. However, there may be limits to the number of results so the user may be asked to add more criteria if their results returns too many results. Clicking the "Search" button will run the search and display the showtimes list. Clicking the "Done" button will return the user to the old showtimes list.

[0049] The 'My Theaters' list (Figure 4F) may be accessible from the menu of any list page. In this regard, each channel as well as the application may have any number of both unique and application wide "Menu" items associated with it. The items are accessed by activating the menu function on the particular wireless device. In the present embodiment, the user may enter a theater name and a city/state or zip. The user may also enter just the city/state or zip. If one theater is returned it should be added to the list. If more than one theater is returned then a list will be displayed (similar to the my theaters list) where the user can choose which theater to add (Figure 4G). The user may also select a theater from their "my theaters" list and remove it by tap-and-hold or use the drop down menu to remove a theater, or by any other activation means as previously described.

[0050] According to one embodiment of the present invention, the user may also be able to purchase tickets via the wireless device by selecting an appropriate quantity from a drop down menu in the theater listing plugin/channel. The information is then passed to a third-party application using data linking previously described.

[0051] Screen shots for a mapping plugin/channel (roads, topographical or other) usable with the aforementioned launcher according to another embodiment of the present invention are shown in Figure 5. When the mapping plugin/channel is launched, it may default to the screen shown in

Figure 5A (mapping) or 5B (driving directions) depending on the user's preferences.

[0052] Using the mapping plugin/channel 5A as an example, the user may enter appropriate address information (or use the Lookup Address button) to retrieve the entered location shown on a map (including surrounding area based on scale of display, with or without points of interest / restaurants / ATMs / gas stations etc. within a given distance of a particular location). See the exemplary map display of Figure 5C. According to one embodiment of the present invention, an entire map program (or entire map program for a region of interest) is stored on the wireless device to eliminate the need to retrieve data from the content provider. While the + Zoom - feature is shown, other mapping features may also be provided such as panning or depiction of points of interest (POI).

[0053] From the map display of Figure 5C, the user may obtain driving directions to a given place of interest. In particular, the user may select the Origin or Destination buttons to enter an address form shown in Figure 5B. This may include lookup links to an address book, such as that previously described, in order to retrieve an address from another application. Such a technique is shown in Figures 5E, 5F, and 5G, where a contact information entry (e.g., the Kansas City, MO plant visit previously described) is used as an address entry for a obtaining a map (Figure 5F) or the Origin/Destination of driving directions (Figure 5G). According to an alternative embodiment of the present invention, the wireless device includes location aware capabilities (global positioning system [GPS] or cellular tower triangulation), which may be used to provide the Origin address.

[0054] Direction information may be presented in a number of ways. For example, images can be provided to give the user instant recognition of each step (e.g., a right turn arrow), the user could be shown a highlighted route on the displayed map, and/or the user could be shown a set of turn by turn directions. Turn by turn directions can be depicted by retrieving a route information from a data content provider. The plugin may include voice

features, which could read the instructions to the user through the speaker or other voice communications capabilities of the wireless device.

[0055] Screen shots for a storyboard/news plugin/channel usable with the aforementioned launcher according to another embodiment of the present invention are shown in Figure 6. Preferably, the user has the ability to choose the category feeds, number of stories per category (3, 5 or 10) and either a full or summary story from the news setup screen shown in Figure 6A. If the user chooses summary they can still choose to download the full story when viewing the summary. When the user selects a story the full or summary will be displayed (based on their selection in the setup screen).

[0056] The main story list shown in Figure 6B displays all the currently downloaded stories and the last updated date/time. Stories may be organized in any number of ways. Possible ways include sub-channels or icons, such as an icon may be added to the left to identify the news category (e.g., top stories, politics, science, business, world, sports, entertainment, etc.).

[0057] The story summary page shown in Figure 6C is displayed if the user has selected to download just the summaries in the setup screen. If the user taps the "Full Story" button it may query the service provider for the full story and take the user to the full story screen shown in Figure 6D. The "Done" button will take the user back to the main story list shown in Figure 6B. Note, there is no need for the summary screen if the user chooses a "Full Story" button in the setup screen as generally this will not display the summary.

[0058] The full story screen shown in Figure 6D is similar to the summary screen shown in Figure 6C except there is no 'full story' button since the full story is already on the device. If the user selected 'full story' in the setup screen then this screen is displayed when the user chooses the story from the main story list. When they select done it takes the user back to the main list shown in Figure 6B.

[0059] If the user navigates to this screen by pressing the 'full story' button from the summary screen (thus querying for the full story) then tapping the done button takes them back to the main list shown in Figure 6B.

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[0060] Screen shots for a 411 (phone listings plugin similar to common white/yellowpages) plugin usable with the aforementioned launcher according to another embodiment of the present invention are shown in Figure 7. Preferably, this plugin defaults to one of the search categories shown in Figures 7A, 7B, 7C, 7D and 7E depending on user preference (set by the user in the launcher), or the user may just choose each time. This includes:

> Figure 7A - Find a person. Last name and City is required.
>
> Figure 7B - Find a neighbor. House#, Street and City is required. This may always bring back a default 10 neighbors, and/or be user definable.
>
> Figure 7C - Find a business. Name and state required.
>
> Figure 7D - Reverse address lookup. House#, Street and City required.
>
> Figure 7E- Reverse phone look up. 10 digit phone number required.

[0061] Preferably, any one of the searches shown in Figures 7A-7E generates a listing page, such as that shown in Figure 7F. This listing page may be encoded with data linking capabilities, where selecting the returned information will give the user the ability to perform one or more of:

1. Dial it (default if it is a smartphone)
2. Add it to the available address book (default if it is not a smartphone)
3. Map it
4. DirectIt

[0062] Additionally, each of these capabilities may also or alternatively be available through the selection drop down and menu drop down.

[0063] The foregoing description of various embodiments of the invention has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed, and modifications and variations are possible in light of the above teachings or may be acquired from practice of the invention. By way of example, any number of channels/plugins may be provided - those set forth in the

description above are thus a few examples of contemplated channels/plugs. Other such channels/plugs are also contemplated, such as a channel/plugin to access selected corporate databases (e.g., CRM), which would allow some personnel (e.g., sales department) to get up to the minute data on a customer before a sales call without having to possess the data on the wireless device. Additional channels/plugins contemplated include investment management channels/plugins (e.g., stock tickers/updates), sports information, rental car information/reservation channels/plugins, and information forwarding channels/plugins (e.g., to forward a reservation to one's secretary or other interested party). Thus, the embodiments were chosen and described in order to explain the principles of the invention and its practical application to enable one skilled in the art to utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated.

WHAT IS CLAIMED IS:

A method of retrieving, displaying and navigating data and internet content on wireless devices, given the inherent limitations wireless handheld devices have including limited screen size and resolution, minimal input and navigation methods (touchscreen vs. non-touchscreen, QWERTY keyboard vs. T9 input, 5way navigation, etc.), limited bandwidth to transfer data, and small form factor. Further, a method is provided for integrating this content into the functional features inherent to the wireless device (including PIM and voice applications).

The application presents data and internet content on a handheld device quickly and efficiently by a combination of stripping away any unnecessary data or content, which might include extraneous text, icons, etc., and maintaining on the device data necessary for the presentation of any transferred data so that the smallest amount of data is transmitted to the device. The ability to customize the data or content requested automatically reduces the amount of data being retrieved, and Express encourages the user to customize their searches. For example, the user is asked to enter their preferred movie theaters to conduct a search against so that only movie times for those few theaters is returned. The contrary example would have the application return all movies for all theaters within a certain location where the result is longer download time, and large amounts of data to navigate on the limited screen size.

The application displays the data and internet content with a customized user interfaces for the device in mind and the content being retrieved.

The application provides effective navigation by utilizing the navigation inherent on the wireless device, which varies from device to device.

The application may integrate the returned internet content into the basic PIM functionality found on a wireless device, and the application extracts PIM information to allow the user to easily enter the PIM information into the application. In addition, the application may integrate content from a content channel into another content channel effectively (for example, allowing a 411 lookup result to be passed to the mapping channel).

A method of linking data between channels, a launcher, and or 3rd party software on a wireless device, comprising:

    (1)   loading a first channel;

    (2)   selecting a link button for a second channel;

    (3)   initiating a call by the first channel to load the second channel;

    (4)   loading the second channel;

    (5)   forwarding linked data to the second channel; and

    (6)   accessing, for the second channel, supplemental data from a service provider.

A method of presenting information on a wireless device, comprising:

    (1)   storing a first data type on the wireless device;

    (2)   loading a channel;

    (3)   receiving a user query for information;

    (4)   accessing a second data type from a content provider in response to the user query; and

    (5)   display a return content result including both the first data type and the second data type.

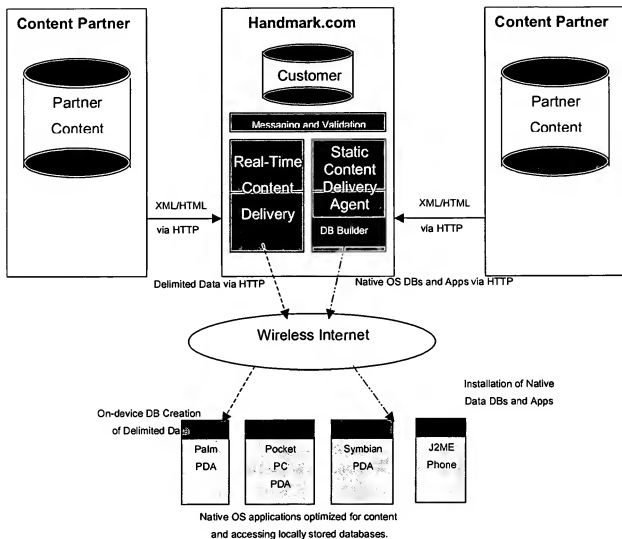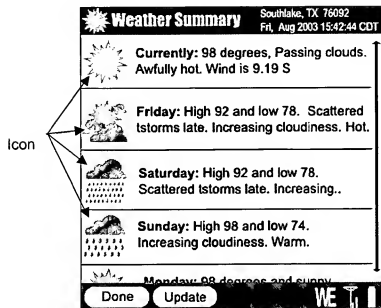Figure 1

Content Partner

Partner Content

Handmark.com

Customer

Messaging and Validation

Real-Time Content Delivery

Static Content Delivery Agent

DB Builder

Content Partner

Partner Content

XML/HTML via HTTP

XML/HTML via HTTP

Delimited Data via HTTP

Native OS DBs and Apps via HTTP

Wireless Internet

On-device DB Creation of Delimited Data

Installation of Native Data DBs and Apps

Palm PDA

Pocket PC PDA

Symbian PDA

J2ME Phone

Native OS applications optimized for content and accessing locally stored databases.

Figure 2

Icon

Figure 3

Figure 3A

Find a Flight

| Flights | Airport-Airport |

Date: ▽ 12 / ▽ 15/ ▽ 2003

Airline Code: ____ Lookup

Flight Number: _____

(Done) (Search)

Figure 3B

Airline Code

Airline: America

(Search)

American Airlines
America West

(OK)

Figure 3C

Flights

American Airlines   2345
Thursday, December 11, 2003
Departed ATL from gate 19 at
8:30am.

Scheduled to arrive SEA at
2:15pm but estimated to
arrive at 2:45pm. Terminal G
gate 18, baggage claim 3.

Weather advisory may delay
flights leaving Atlanta

(Done) (Update)

Figure 3D

Find a Flight

| Flights | Airport-Airport |

Date: ▽ 12 / ▽ 15/ ▽ 2003

▽ Departure: ▽ 8am - 12pm

Departure
Airport Code: ____ Lookup

Arrival
Airport Code: ____ Lookup

(Done) (Search)

Figure 3E

Airport Code

Airport Name or City:
Dallas

(Search)

Love Field
Dallas - Fort Worth Internation
Meecham Airport

(OK)

Figure 3F

Flights

American Airlines   2345
Depart DFW 10:34am
Arrive MCI 12:33pm

American Airlines   3433
Depart DFW 12:34pm
Arrive MCI 1:44pm

(Done)

Figure 3G

Flight Summary

American Airlines   2345
Thursday, December 11, 2003

Departed ATL at 8:30am.

Scheduled to arrive SEA at
2:15pm and estimated to
arrive at 2:45pm.

(Done) (Update) (Details)

Figure 4

Figure 4A

Movie Showtimes

Finding Nemo
Comedy, Family, G, 1:34m
Grapevine Mills 26
[2:45 PM](3:25)(4:55)(5:45),
7:00, 8:00, 9:25, 10:10 PM
Silverlake 6
[3:05 PM], (5:30),7:40,9:55PM
Spy Kids 3D: Game Over
Action, Orama, PG, 92m
Silverlake 6
[3:05 PM], (5:30), 7:40, 9:55

(Done) (Update) (New Search)

Figure 4B

Movie Details

Spy Kids 30: Game Over
Action, Orama, G for action
sequences and peril
Cast: Antonio Banderas, Carla
Gugino, Alexa Vega, Daryl
Sabara, Sylvester Stallone
Directed by Robert Rodriguez
Released on July 25, 2003
Running Time: 89 Minutes

Under-age agents Juni and
Carmen Cortez set out on their

(Done) (Theaters)

Figure 4C

Theater Details

Grapevine Mills
Spy Kids 30: Game Over
[2:45 PM](3:25)(4:55)(5:45),
7:00, 8:00, 9:25, 10:10 PM
$5.50, $3.50, $3.50
115 South Sycamore Street
Grapevine, TX 76092
(423)543-1933

Silverlake 6
Spy Kids 30: Game Over
[3:05 PM], (5:30),7:40,9:55PM

(Done)

Figure 4D

Movie Showtimes

Movie: ▼ All Movies

☑ Include Movie Details

Theater: ▼ My Theaters

(Done) (Search)

Figure 4E

Movie Showtimes

Movie: ▼ By Name
Name: _____

☑ Include Movie Details

Theater: ▼ By Location
Name: _____

City: _____ St: ▼
Zip: _____
    City/Stateor Zip Required

(Done) (Search)

Figure 4F

My Theaters

Grapevine Tinsel Town 26
1212 N. Main St
Grapevine, Tx
817-488-3335
Grapevine Mills 12
100 Grapevine Mills Pkwy
Grapevine, TX
814-555-6666
Southlake Town Square AMC
1200 Main St
Southlake, TX

(Done) (Add Theater)

Figure 4G

Add Theater to 'My Theaters'

Theater Name: _____

City: _____ St: ▼

Zip: _____

    City/Stateor Zip Required

(Done) (Search)

Figure 5

Mapping	Directions

Lookup Address

Addres ————————   Figure 5A

City ————————

State ————————

Zip ————————

Map

Mapping	Directions

Origin:

Lookup

Addres ————————   Figure 5B
City ————————
State ————————
Zip ————————

Destination

Lookup

Addres ————————
City ————————
State
Zip

Get Directions

Figure 5 (Continued)

Map Image

+ Zoom -

For directions, use Address

Origin | Destination

Figure 5C

Turn by Turn

Text Directions

Map

Origin | Destination
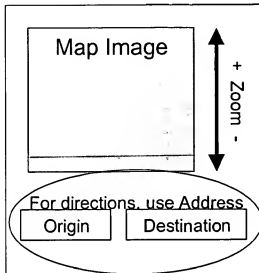
Figure 5D

Figure 5 (Continued)

Figure 5E

Figure 5F

Figure 5G

Figure 5 (Continued)

| Handmark |
| 105 E. 5th Street |
| Kansas City, MO |

What Would You Like to Do?

| MapIt | AddIt | DialIt | DirectIt |

Figure 5H

Figure 6

Reuters News Setup

☑ Top Stories   ☑ Politics
☑ Business   ☑ Science
☑ World   ☑ Sports
☑ Entertainment

Stories Per Category: ▼ 5
Full Story or Summary: ▼ Full

Note: Low bandwidth users should choose fewer categories, stories and the summary to minimize download time.

(Done)

Figure 6A

Reuters News   12/12/03 13:40 am

Reynolds Posts Posts Huge Loss,
Shares Jump

Durable Goods Show Businesses
Spending

Fed Seen Holding Rates at
1958 Lows

Microsoft Unwraps New
Operating System

XM Satellite Radio Top 1
Millions Users

(Done) (Update)

Figure 6B

Reuters News   12/12/03 13:40 am

Microsoft Unwraps New
Operating System Mon Oct 27,
5:03 PM ET. By Ben Berkowitz

LOS ANGELES (Reuters) -
Microsoft Corp. (NasdaqNM:
MSFT - news) on Monday gave
its most detailed look yet at the
next version of Windows, code-
named "Longhorn," which
promises new methods of storing
files, tighter links to the Internet,
greater security, and fewer

(Done) (Full Story)

Figure 6C

Reuters News   12/12/03 13:40 am

Microsoft Unwraps New
Operating System Mon Oct 27,
5:03 PM ET. By Ben Berkowitz

LOS ANGELES (Reuters) -
Microsoft Corp. (NasdaqNM:
MSFT - news) on Monday gave
its most detailed look yet at the
next version of Windows, code-
named "Longhorn," which
promises new methods of storing
files, tighter links to the Internet,
greater security, and fewer

(Done)

Figure 6D

Figure 7

White Pages

Search: ▼ Find a Person

First:————————▼ Begins With
*Last: ————————▼ Exactly
House #: ——————
Street: ——————
City: ——————*State:—
   (Search)
(Done)   *required

Figure 7A

White Pages

Search: ▼ Find a Neighbor

*House #: ——————
*Street: ——————
*City: ——————*State:—
 Zip:
   (Search)
(Done)   *required

Figure 7B

White Pages

Search: ▼ Find a Business

*Name: ————————

City: —————— *State: —

Zip: ——————

   (Search)
(Done)   *required

Figure 7C

White Pages

Search: ▼ Reverse Address

*House #: ——————
*Street: ——————
*City: ——————*State:—
 Zip: ——————
   (Search)
(Done)   *required

Figure 7D

White Pages

Search: ▼ Reverse Phone

*Phone #: ——————

   (Search)
(Done)   *required

Figure 7E

White Pages

Lackey, B C
Walnut Springs, TX 76690
(254) 797-3781

Lackey C
1012 Brazos Dr.
Southlake, TX 76092

Lackey
214 E.College St.
Grapevine, TX 76092
(Done)

Figure 7F

Application Data Sheet

Application Information

Application number::	Unassigned
Filing Date::	March 10, 2004
Application Type::	Provisional
Subject Matter::	
Suggested classification::	
Suggested Group Art Unit::	
CD-ROM or CD-R?::	None
Number of CD disks::	
Number of copies of CDs::	
Sequence submission?::	
Computer Readable Form (CRF)?::	
Number of copies of CRF::	
Title::	WIRELESS DATA ACCESS ARCHITECTURE
Attorney Docket Number::	40628-0005
Request for Early Publication?::	No
Request for Non-Publication?::	No
Suggested Drawing Figure::	
Total Drawing Sheets::	
Small Entity?::	Yes
Latin name::	
Variety denomination name::	
Petition included?::	No
Petition Type::	
Licensed US Govt. Agency::	
Contractor Grant Numbers::	
Secrecy Order in Parent Appl.?::	No

Applicant Information

Applicant Authority Type::	Inventor
Primary Citizenship Country::	United States
Status::	Full Capacity
Given Name::	James
Middle Name::	Douglas
Family Name::	Edwards
Name Suffix::	
City of Residence::	Kansas City
State or Province of Residence::	MO
Country of Residence::	United States
Street of mailing address::	8629-30 Rhinehart Road
City of mailing address::	Kansas City
State or Province of mailing address::	MO
Country of mailing address::	United States
Postal or Zip Code of mailing address::	64139

Applicant Authority Type::	Inventor
Primary Citizenship Country::	United States
Status::	Full Capacity
Given Name::	Timothy
Middle Name::	B.
Family Name::	Massey
Name Suffix::	
City of Residence::	Olathe
State or Province of Residence::	KS
Country of Residence::	United States
Street of mailing address::	12130 Water Street

City of mailing address::	Olathe
State or Province of mailing address::	KS
Country of mailing address::	United States
Postal or Zip Code of mailing address::	66061

Applicant Authority Type::	Inventor
Primary Citizenship Country::	United States
Status::	Full Capacity
Given Name::	Cassidy
Middle Name::	Landon
Family Name::	Lackey
Name Suffix::	
City of Residence::	Southlake
State or Province of Residence::	TX
Country of Residence::	United States
Street of mailing address::	1012 Brazos Drive

City of mailing address::	Southlake
State or Province of mailing address::	TX
Country of mailing address::	United States
Postal or Zip Code of mailing address::	76092

Applicant Authority Type::	Inventor
Primary Citizenship Country::	United States
Status::	Full Capacity
Given Name::	Stephen
Middle Name::	Nicholas
Family Name::	McGuigan

Name Suffix::

City of Residence::   Los Altos

State or Province of Residence::   CA

Country of Residence::   United States

Street of mailing address::   655 Palm Avenue

City of mailing address::   Los Altos

State or Province of mailing address::   CA

Country of mailing address::   United States

Postal or Zip Code of mailing address::   94022

Applicant Authority Type::   Inventor

Primary Citizenship Country::   United States

Status::   Full Capacity

Given Name::   Ronald

Middle Name::   D.

Family Name::   Patton

Name Suffix::

City of Residence::   Gainesville

State or Province of Residence::   FL

Country of Residence::   United States

Street of mailing address::   1005 NW 101st Drive

City of mailing address::   Gainesville

State or Province of mailing address::   FL

Country of mailing address::   United States

Postal or Zip Code of mailing address::   32606

Applicant Authority Type::   Inventor

Primary Citizenship Country::   United States

Status::	Full Capacity
Given Name::	Robert
Middle Name::	
Family Name::	West
Name Suffix::	
City of Residence::	Broken Arrow
State or Province of Residence::	OK
Country of Residence::	United States
Street of mailing address::	118 W. Quanah Ct.
City of mailing address::	Broken Arrow
State or Province of mailing address::	OK
Country of mailing address::	United States
Postal or Zip Code of mailing address::	74011
Applicant Authority Type::	Inventor
Primary Citizenship Country::	United States
Status::	Full Capacity
Given Name::	Benjamin
Middle Name::	
Family Name::	Gottlieb
Name Suffix::	
City of Residence::	Chicago
State or Province of Residence::	IL
Country of Residence::	United States
Street of mailing address::	707 W. Junior Terrace, #2N
City of mailing address::	Chicago
State or Province of mailing address::	IL
Country of mailing address::	United States
Postal or Zip Code of mailing address::	60613

Applicant Authority Type::	Inventor
Primary Citizenship Country::	United States
Status::	Full Capacity
Given Name::	Samuel
Middle Name::	Patrick
Family Name::	Chipman
Name Suffix::	
City of Residence::	Canton
State or Province of Residence::	GA
Country of Residence::	United States
Street of mailing address::	532 Tamarack Trail
City of mailing address::	Canton
State or Province of mailing address::	GA
Country of mailing address::	United States
Postal or Zip Code of mailing address::	30115

Correspondence Information

Correspondence Customer Number::	26633
Name::	Heller Ehrman White & McAuliffe
Street of mailing address::	1666 K Street, NW
	Suite 300
City of mailing address::	Washington
State or Province of mailing address::	DC
Country of mailing address::	United States
Postal or Zip Code of mailing address::	20006
Phone number::	202.912.2000
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